

PHYSICAL CHARACTERISTICS REPORT INCORPORATING
AGRICULTURAL LAND CLASSIFICATION
LAND AT GROVEBURY QUARRY, LEIGHTON BUZZARD

1.0 INTRODUCTION

1.1 A Soil and Agricultural Land Classification survey was carried out over 105 hectares of land at Grovebury Quarry, Leighton Buzzard, Bedfordshire in connection with a proposed sand extraction by ECC Construction Materials Ltd.

1.2 MAFF surveyed the site in March 1991 at an auger boring density of approximately one per hectare. These auger borings were supplemented by detailed subsoil information recorded from two soil pits.

2.0 The definition of Agricultural Land Classification grades are included in Appendix 1.

2.2 The table below shows the breakdown of ALC grades in hectares and percentage terms for the survey area.

Agricultural Land Classification		
Grade	ha	%
3a	13.7	13.0
3b	34.5	32.9
Urban	56.7	54.0
Non Agricultural	0.1	0.1
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Total	105.0	100

2.3 One main soil type was identified which typically comprises very slightly stony clay, silty clay or heavy clay loam topsoils overlying clay or silty clay subsoils. Profiles were predominantly non calcareous although two areas of calcareous soils were identified. Soils were assessed as wetness Class III leading to wetness/workability problems being the main limitation to agricultural land quality.

2.4 GRADE 3a

2.4.1 Land graded 3a was identified in the calcareous variants of the soils described in paragraph 2.3. Areas of grade 3a land occur in the eastern corner of the site and in the south west of the site to the south of Church Lock.

2.5 GRADE 3b

2.5.1 The majority of the site has been classified as 3b. These soils are the non calcareous variants described in paragraph 2.3.

2.6 A full description of site and soil physical characteristics is given below.

3.0 SITE PHYSICAL CHARACTERISTICS

CLIMATE

3.1 Climatic information of the site has been interpolated from the 5km grid datasets produced by the Meteorological Office (Met Office, 1989). The average annual rainfall is 662 mm. This dataset also indicates that field capacity days are 142 and moisture deficits are 105 mm for wheat and 96 mm for potatoes. These climatic characteristics do not impose any climatic limitation on the ALC grading of the survey site.

ALTITUDE AND RELIEF

3.2 The land is relatively level across the site. The altitude is approximately 88m AOD, consequently gradient and altitude do not constitute limitations to ALC grade.

4.0 SOIL PHYSICAL CHARACTERISTICS

4.1 GEOLOGY

The published 1:63360 drift edition sheet 238 Aylesbury shows the site to comprise clay with flints or upper chalk.

4.2 SOILS

No detailed soil map exists for the area. During the course of this survey, a detailed inspection of the soils indicated the presence of one main soil type which is fully described below.

SOIL MAPPING UNIT

TOPSOIL

Texture: Typically clay, silty clay loam as clay loam.
CaCO₃: Variable.
Colour: Dark brown (10YR 4/3)
Stone: 2-3% total stone.
Depth: In the range 25-33 cm, typically 28 cm.
Structure: Cultivation zone - not applicable.
Boundary: Smooth clear lower boundary.
Roots: Common fine and very fine roots.

UPPER SUBSOIL

Texture: Clay or silty clay.
CaCO₃: Variable.
Colour: Brown (10YR 5/3) or greyish brown (10YR 5/2).
Stone: In the range 2-10%, typically 2-3% comprising small and medium flints.
Depth: Typically 55-60 cm.
Structure: Commonly moderately developed medium prisms and medium angular blocky.
Consistence: Firm.
Porosity: Less than 0.5% biopores.
Boundary: Smooth clear lower boundary.
Roots: Few fine and very fine roots.

LOWER SUBSOIL

Texture: Clay or silty clay.
CaCO₃: Variable.
Colour: Grey (10YR 5/1 or 5YR 6/1).
Stone: 0-5%, comprising small and medium flints.
Depth: 120 cm.
Structure: Moderately developed very coarse and coarse angular blocky.
Consistence: Very firm.
Porosity: Less than 0.5% biopores.
Roots: Few fine and very fine roots.

REFERENCES

Geological Survey of England and Wales (1962) Drift edition geology sheet 238 (Aylesbury).

MAFF (1988) Agricultural Land Classification of England and Wales.

Meteorological Office (1989) Climatological data for Agricultural Land Classification.